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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/559,347 | 04/27/2000 | Qixu David Chen | 146712000400 | 2901 |

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EXAMINER

BERNATZ, KEVIN M

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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1773

15

DATE MAILED: 06/12/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

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| | | | | |
|------------------------------|------------------------|--|---------------------|--|
| Office Action Summary | Application No. | | Applicant(s) | |
| | 09/559,347 | | CHEN ET AL. | |
| | Examiner | | Art Unit | |
| | Kevin M Bernatz | | 1773 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2,3,8,9,11,12,17,18 and 21-25 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 2,3,8,9,11,12,17,18 and 21-25 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____. | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Amendments to claims 23 - 25, filed on April 5, 2002, have been entered in the above-identified application. Amendment to claim 16 has not been entered since claim 16 was previously cancelled (see Paper No. 6, entered upon filing of the CPA in Paper No. 8).
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Specification

3. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification. While reviewing the specification, the examiner noted at least one error – page 12, line 13: "surface of layer to" is unclear since it is unclear what layer is being referred to in the above sentence.

Double Patenting

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA

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1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 2, 3, 8, 9, 11, 12, 17, 18 and 21 – 25 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 - 20 of Chen et al. ('890) in view of Ross et al. ('997).

With regard to claims 2, 3, 8, 9, 11, 12, 17, 18 and 21 – 23, the above rejection is maintained for the reasons of record as set forth in Paragraph No. 6 of the Office Action mailed on March 14, 2002 (Paper No. 13).

With regard to claims 24 and 25, Chen et al. claims a weight percent Li overlapping applicants' claimed limitations (claim 1).

Claim Rejections - 35 USC § 103

6. Claims 2, 11, 18 and 21 – 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ross et al. ('997) and Starcke et al. ('828) in view of Taguchi et al. ('376).

The above rejection is maintained for the reasons of record as set forth in Paragraph No. 10 of the Office Action mailed on March 14, 2002 (Paper No. 13). The added limitation to claim 23 is clearly met by Ross et al. ('997) which disclose NiNb layers.

7. Claims 3 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ross et al. ('997), Starcke et al. ('828) and Taguchi et al. ('376) as applied above, and further in view of Chen et al. ('370).

The above rejection is maintained for the reasons of record as set forth in Paragraph No. 11 of the Office Action mailed on March 14, 2002 (Paper No. 13).

8. Claims ~~3~~⁸ and ~~12~~¹⁷ are rejected under 35 U.S.C. 103(a) as being unpatentable over Ross et al. ('997), Starcke et al. ('828) and Taguchi et al. ('376) as applied above, and further in view of Okamura et al. ('733).

The above rejection is maintained for the reasons of record as set forth in Paragraph No. 12 of the Office Action mailed on March 14, 2002 (Paper No. 13).

9. Claims ~~3~~⁹ and ~~12~~¹⁸ are rejected under 35 U.S.C. 103(a) as being unpatentable over Ross et al. ('997), Starcke et al. ('828) and Taguchi et al. ('376) as applied above, and further in view of applicants' admissions.

The above rejection is maintained for the reasons of record as set forth in Paragraph No. 13 of the Office Action mailed on March 14, 2002 (Paper No. 13).

10. Claims 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ross et al. ('997) in view of Starcke et al. ('828) as applied above, and further in view of applicants' admissions.

Ross et al. ('997) in view of Starcke et al. ('828) disclose the claimed invention as described above.

Both references fail to disclose a Li containing substrate meeting applicants' claimed limitations.

However, applicants' admit that it is old in the art to add lithium in a weight percent meeting applicants' claimed limitations in order to lower T_g and, therefore, make processing the glass easier (page 6, lines 1 – 6).

It would therefore have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the device of Ross et al. ('997) in view of Starcke et al. ('828) to use a glass substrate comprising Li in an amount meeting applicants' claimed limitations as admitted to by applicants in order to lower T_g and to make processing of the glass substrate easier.

Response to Arguments

11. The rejection of claims 2, 3, 8, 9, 11, 12, 17, 18 and 21 - 23 under 35 U.S.C § 103(a) – Ross et al. ('997) in view of various references

Applicant(s) argue(s) that a position of inherency must be supported by evidence or reasoning why the property recited is inherently disclosed in the prior art reference and that the examiner has failed to discharge this burden. The examiner respectfully disagrees.

As stated in the rejection of record (Paragraph No. 10, page 8) the examiner noted that the function property was deemed inherent since because both applicants'

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and Ross et al. use NiNb (i.e. substantially identical layers) and Ross et al. teach that NiNb and NiP prevent the migration of Na ions while Starcke et al. teach that a well adhered NiP layer prevents the migration of **all** alkali ions ("The nickel phosphorous plating of a glass substrate eliminates problems of corrosion **as it encapsulates all the alkaline metal ions which may leach out**", [emphasis added], col. 3, line 67 bridging col. 4, line 2). In addition, the examiner has cited Hashimoto et al. ('338) which teach that one of ordinary skill in the art would recognize that both Na⁺ and Li⁺ have similar alkali ion diffusion problems (col. 6, lines 5 – 30 and col. 9, lines 33 – 34, which disclose adding a combination of Li⁺ and Na⁺ to optimize the strength of the glass, but that the **combined** content must be controlled or alkali ion diffusion problems could result). Therefor, the examiner deems that the burden of providing evidence or reasoning has been properly discharged.

Applicants further argue that the laser textured layers of Ross et al. would not inherently prevent migration of the Li ions since the laser texturing causes "localized displacement of NiNb atoms, dislocations, grain boundary formation [and] imperfections". The examiner respectfully disagrees.

Applicants are reminded that attorney arguments are not considered evidence. If applicants wish to provide evidence that a laser textured NiNb layer would not inherently prevent Li ion migration, applicants are respectfully requested to provide said evidence in the form of a declaration or affidavit. The examiner deems that evidence indicating that laser textured NiNb would not inherently prevent the migration of Li ions would be sufficient to overcome the rejections of record.

In addition, applicant(s) argue(s) that no prior art product uses a NiNb layer directly on a lithium containing substrate and that Ross et al. ('997) does not show a NiNb layer directly on a glass substrate. The examiner respectfully disagrees.

Applicant(s) are reminded that the rejection is based on the entire reference(s) and not just a piece meal analysis of the cited reference(s). In the instant case, while Ross et al. ('997) does not disclose any examples wherein the NiNb layer is directly deposited on the glass substrate, Ross et al. ('997) clearly states that the NiNb can be directly deposited on the substrate ("In another embodiment, NiNb is sputtered directly onto substrate 112" (col. 8, lines 1 – 2).

Subsequently, applicants argue that the examiner is requiring a comparison versus a hypothetical "prior art product". The examiner respectfully disagrees.

The examiner has not requested a showing of unexpected results versus any of the references cited and applicants arguments on inherency are directed to the effect of laser texturing on the migration pathways of a NiNb layer. Evidence proving the failings of an inherency argument need not come from examples if a declaration provides support for the lack of inherency. Furthermore, had the examiner applied prior art comprising a lithium substrate with a NiNb layer directly deposited therein, it would be under 35 U.S.C. 102, not 35 U.S.C. 103, meaning that a showing of unexpected results would have been moot since a showing of unexpected results cannot overcome a rejection under 35 U.S.C. 102. As such, the examiner deems that the closest prior art is Ross et al. ('997) which disclose embodiments of laser textured NiNb layers directly

deposited on borosilicate glass substrates and disclose examples wherein NiNb is deposited above a Cr adhesion layer over a borosilicate glass substrate.

Applicants further argue that NiP and NiNb are not known to prevent the migration of Li ions even if they are known to prevent the migration of Na ions. The examiner respectfully disagrees.

Applicants are reminded that the test of obviousness is not express suggestion of the claimed invention in any or all references but rather what the references taken collectively would suggest to those of ordinary skill in the art presumed to be familiar with them. *In re Rosselet*, 347 F.2d 847, 146 USPQ 183 (CCPA 1965); *In re Hedges*, 783 F.2d 1038; *Ex parte Martin* 215 USPQ 543, 544 (PO BdPatApp 1981). As stated above, NiP and NiNb are known to encapsulate Na ions. NiP is known to encapsulate all alkali ions. Na ions and Li ions are known to both serve similar functions in glass substrates and both contribute to alkali ion diffusion problems. One of ordinary skill in the art would therefor deem that since NiP is known to encapsulate all alkali ions, including Li and Na ions, and NiNb is known to encapsulate Na ions, that NiNb would be expected to also encapsulate all alkali ions, including Li ions.

In addition, applicants argue that NiP and NiNb are **not** known equivalents. The examiner respectfully disagrees.

Ross et al. ('997) clearly teach using both NiP and NiNb on glass substrates, with or without adhesion enhancing layers. Furthermore, it is not unexpected that NiP has poor adhesion to glass substrates (see Starcke et al., col. 3, lines 10 – 12: "However, nickel phosphorous plating nonmetallic substrates generally fails due to poor

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adhesion"). In addition, the examiner notes as above that Ross et al. ('997) disclose embodiments where the NiNb is explicitly stated to be directly deposited on the glass substrate.

Finally, applicants argue that the motivation for using the invention of Takeuchi et al. with Ross et al. ('997) is lacking. The examiner respectfully disagrees.

However, the suggestion to combine need not be express and "may come from the prior art, as filtered through the knowledge of one skilled in the art." *Motorola, Inc. v. Interdigital Tech. Corp.*, 121 F.3d 1461, 1472, 43 USPQ2d 1481, 1489 (Fed. Cir. 1997). Takeuchi et al. disclose a glass substrate that is excellent in strength, flatness and modulus, leading to a recording medium possessing no burring and low flying height (col. 2, lines 12 – 27 and lines 56 – 57). The disclosed glass substrate can be easily formed, polished and chemically strengthened, thereby resulting in a magnetic recording medium which is easier to produce. This is supported by applicants' admissions, which state that lithium is added to glass substrates to lower T_g, thereby making the formation of the glass substrate easier (page 6, lines 1 – 6). Therefore, the examiner deems that one of ordinary skill in the art would have been motivated to use the substrate of Takeuchi et al. with the layered medium of Ross et al. ('997), given that Ross et al. ('997) is open to glass substrates and the glass substrate of Takeuchi et al. results in a superior recording medium.

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Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin M Bernatz whose telephone number is (703) 308-1737. The examiner can normally be reached on M-F, 9:00 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Thibodeau can be reached on (703) 308-2367. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0651.



KMB
June 10, 2002



STEVAN A. RESAN
PRIMARY EXAMINER